Space Weather Forecast

Issued on Saturday, 01 January 2022 at 00:50 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

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Space Weather Forecast Headline: Slight chance of Minor Geomagnetic storm on 01 January.

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has been low, with two common class flares observed from a region in the northwest quadrant. There are four other regions on the visible disc, with the largest of these, in the southwest quadrant, relatively stable through the last 48 hours, with the other regions weak and stable. No Earth-directed CMEs have been observed on available imagery.

Solar Wind / Geomagnetic Activity: Solar winds have been declining from slightly elevated levels to background levels during the last 24 hours, under the waning influence of a fast wind from a coronal hole. Total magnetic field strength was weak, as was the important north-south component. Geomagnetic activity has been Quiet throughout.

Energetic Particles / Solar Radiation: No solar radiation storms were observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Low or very low solar activity is expected, with a slight chance of moderate class flares from either of the two significant regions in the western hemisphere, although one of these will be rotating off disc in the next 24 hours.

Solar Wind / Geomagnetic Activity: A fast wind will develop on 01 January from a coronal wind. Winds are likely to become elevated through into 02 January, before declining on 03 January. Geomagnetic activity is expected to be mainly Quiet to Unsettled, but with a risk of Active or G1/Minor Storm intervals on 01 January due to the onset of the high speed stream from a coronal hole.

Energetic Particles / Solar Radiation: No solar radiation storms are expected.

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Met Office Space Weather Forecast

Geomagnetic Storms:

Geo-Magnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	10	5	1	1
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 M Class	No	20	10	10	10
Very Active	R3 to R5 X	No	3	1	1	1

Solar Radiation Storms - (High Energy Protons):

Radiation Storms Probability (Exceedance)	Level (cm^{-2} sr^{-1} s^{-1})	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	≥ S1	No	5	5	5	5
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)

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